AMENDMENTS TO THE SPECIFICATION:

Please replace paragraph 0052 with the following rewritten paragraph having the same paragraph number:

For purposes of understanding the following descriptions of the subject systems and methods, a simplified model of an impedance circuit 40 of the electrochemical cell of the test strip of Fig. 1 is provided in Fig. 2. Impedance circuit 40 is representative of the impedance factors of the test strip when containing a sample of biological solution and having a voltage applied to it by voltage supply 48. When a DC voltage is applied to the cell, impedance circuit 40 comprises equivalent cell capacitance (C) 42, which includes the double layer (C_{dl}) and the Faradaic (C_S) capacitances, and the equivalent cell resistance (R) 46 of the electrochemical cell.

Please replace paragraph 0056 with the following rewritten paragraph having the same paragraph number:

The Schmidt trigger circuit has an upper voltage (V_H) in the range from about 200 to 600 mV and a lower trigger voltage (V_L) in the range from about 0 to 500 mV. In a particular variation, the Schmidt trigger circuit has an upper trigger voltage V_H of about 350 mV and a lower trigger voltage V_L of about 250 mV. Accordingly, when there is no sample solution in the cell, R and C do not exist. When the circuit is powered up, C1 is initially discharged and therefore the input signal V_I is below 250 mV. Under this condition, the output of operational amplifier 56 is at high voltage, *i.e.*, approximates supply voltage V_{CC}, whereby C1 is then charged by the power supply voltage V_{CC} across R1, and the output voltage V_O remains at the supply voltage V_{CC} which is in the range from about 1.8 to 5 V, and is more typically about 3 V. When the capacitor C1 charges, the input signal V_I from terminal 72 increases until the voltage reaches above 350 mV. At this time, the output of the operational amplifier 56 goes to around zero volts whereby C1 is then discharged through resistor R1, and the output voltage V_O remains at zero volts. Thus, the charging and discharging of the capacitance C1 causes the output voltage V_O of the Schmidt trigger circuit to generate a rectangular oscillation. In the absence of a sample within biosensor 70, R1 and C1 determine the oscillation period or frequency of output voltage V_O. This latter oscillation period is determined by the following equation:

$$T_1 = \text{~~}R_1C_1\text{~~}\underline{R1C1}\left(\ln\frac{V_H}{V_L} - \ln\frac{V_{cc}-V_L}{V_{cc}-V_H}\right) \quad (1)$$

where T_1 is the oscillation period, R1 and C1 are components discussed above, V_H and V_L are the respective high and low voltage levels of the Schmidt trigger circuit, and V_{CC} is the supply voltage to the Schmidt trigger circuit. When a sample is applied to biosensor 70, the cell capacitance C is created in biosensor 70, producing an output voltage oscillation period determined by the following equation, choosing R1 such that R1<<R:

$$T_2 = \text{~~}R_1(C_1\text{~~}\underline{R1(C1+C)}\left(\ln\frac{V_H}{V_L} - \ln\frac{V_{cc}-V_L}{V_{cc}-V_H}\right) \quad (2)$$

Accordingly, the differential or change ~~(DT)~~ (ΔT) in the oscillation period of the output signal generated ~~from~~ as between an input signal ~~of~~ from biosensor 70 without a sample ~~(T1)~~ (T_1) and an input signal from biosensor 70 with a sample ~~(T2)~~ (T_2) is determined by the following equations:

$$\Delta T = T_2 - T_1 \quad (3)$$

$$\Delta T = \text{~~}R_1\underline{R1C}\left(\ln\frac{V_H}{V_L} - \ln\frac{V_{cc}-V_L}{V_{cc}-V_H}\right) \quad (4)$$

where ΔT is a linear function of the ~~cell~~ equivalent capacitance C of the biosensor's electrochemical cell. Therefore, by ~~measuring~~ determining the oscillation period produced by the oscillation circuit, the equivalent cell capacitance ~~is measured~~ can be determined.

Please replace paragraph 0057 with the following rewritten paragraph having the same paragraph number:

Another embodiment of an oscillation circuit usable with the subject system is illustrated in Fig. 5 wherein resistor R1 has been replaced with a constant current source ~~I_{CC}~~ I_C in order to control the amount of current applied to the sample. The direction of the current flow supplied by the current source is controlled by the output of operational amplifier 56, *i.e.*, output signal V_O. When the output signal V_O is high, the current source will supply current to the biosensor 70 via terminal 72 to charge the equivalent cell capacitance. The voltage across capacitor C1 will rise linearly rather than exponentially as in the embodiment of Fig. 3. When V_I reaches around 350 mV, the output of the operational amplifier 56 changes the direction of the current source 57 and causes the cell capacitor C and circuit capacitor C1 to discharge and V_I begins to decrease. This cycle will be repeated and a rectangular shape waveform is generated at the output of operational amplifier 56 (V_O).

Please replace paragraph 0058 with the following rewritten paragraph having the same paragraph number:

With either oscillator circuit described above, the output signal V_O is provided to microprocessor 52 via terminal 58. Since the output signal is either close to zero volts or power supply voltage it is directly connected to one of the available microprocessor I/O ports and there is no need to use an Analog to Digital (A/D) converter to convert the periodic signal into digital format. Microprocessor 52 is programmed to receive ~~such signal v_O~~ the output signal and derive and/or determine the factors or parameters of interest, e.g., equivalent cell capacitance, the surface area of the biosensor in contact with the biosensor, the volume of the biological sample, the compensation factor, etc.; and to control the timing of each of these functions. Microprocessor 52 may include a memory storage means for storing predetermined, pre-selected or calibrated data or information such as the total volume of the electrochemical cell, calibration parameters, operating temperature range, sample type information, sample detection information and the like which are necessary or useful for performing the steps and functions of the subject methods. Although a microprocessor has been described for purposes of storing and processing data in accordance with the principles of the present invention, those skilled in the art will recognize that other discrete electronic components may be collectively configured to achieve the objectives of the present invention.

Please replace paragraph 0064 with the following rewritten paragraph having the same paragraph number:

Prior to practicing the subject methods, it is first necessary to obtain the biological sample to be measured and placing such sample within the test strip cell. This may be accomplished by first inserting the test strip into the test meter and then applying the sample to the test strip ("on-meter dosing"), or by first applying the sample to the test strip and then inserting the test strip into the test meter ("off-meter dosing"). The latter sequence is often preferred in hospital environments as it is ~~more~~ less likely to cause cross-contamination within the meter. The measurement meter then detects that the biological sample has been introduced into the electrochemical cell (as disclosed in U.S. Patent No. 6,193,873).

Please replace paragraph 0065 with the following rewritten paragraph having the same paragraph number:

In practicing the subject methods, immediately after the deposit or transfer of a sample to within the biosensor 70, i.e., into the reaction area of the electrochemical cell of the test strip, is detected, an oscillator circuit is attached to the test strip thereby charging and discharging the electrochemical cell. The average of the voltage applied to the cell is a net DC voltage thereby causing the electrochemical cell equivalent capacitance to stabilize more rapidly. The average of the magnitude of the applied DC voltage ~~is equal to the one that is used for glucose measurement to be compatible with~~ has a value which meets glucose measurement requirements. The charging and discharging voltage across the cell capacitance (C) is then provided or supplied as an input signal V_I to electronic circuit 50, specifically to oscillator circuit 54. From this input signal V_I, circuit 54 creates an oscillating voltage output (V_O) having a period proportional to that of the equivalent cell capacitance.

Please replace paragraph 0072 with the following rewritten paragraph having the same paragraph number:

It is known in the art that the concentration of a selected analyte, such as glucose, of the biological sample within the cell is proportional to the Faradaic current (I_F) that is passed through the electrochemical cell when a DC voltage is applied, that the cell current is proportional to the cell surface area covered by the sample solution. As mentioned above, the inventor has determined that such surface area is proportional to the equivalent capacitance of the cell. Thus, the concentration of the selected analyte is proportional to the equivalent cell capacitance. By determining the equivalent cell

capacitance when a sample solution is present and by knowing the capacitance of the cell when completely filled with a biological solution (determined by a calibration process), the compensation factor (F_{cf}) necessary to compensate for a low sample volume and to provide an accurate analyte concentration measurement can be determined according to the following equation:

$$F_{cf} = C_f / C_{pf} \qquad (7)$$

where C_f is the equivalent capacitance of the electrochemical cell when ~~of the~~ completely filled and C_{pf} is the equivalent capacitance of the electrochemical cell containing the inadequate volume of biological sample. The corrected analyte concentration measurement (G) is then made with the appropriate compensation factor (F_{cf}) according to the following equation:

$$G = F_{cf} \cdot G_{pf} \qquad (8)$$

where ~~Gpf~~ $\underline{G_{pf}}$ is the analyte concentration calculated from the cell containing inadequate volume of biological sample. In being able to compensate for inadequately low sample volume, the subject methods avoid wasting test strips, decrease costs and reduce the time necessary for conducting the analyte measurement.